

The effect of modifiers on...

S/128/62/000/011/001/001
A004/A127

resistance. The addition of 0.05% Ba increased the crack resistance; if this Ba-addition is raised, the crack resistance deteriorates. An addition of 0.15% Ti and 0.10% Zr also increased the crack resistance of the steel. A comparison of shrinkage and crack-resistance curves makes it possible to assume that one of the reasons for an increased crack resistance as a result of Ce-, Ba-, Zr- and Ti-additions is the change in the kinetics of the shrinkage process. An analysis of nonmetallic inclusions and gases showed that an addition of 0.15% Ce reduces the amount of nonmetallic inclusions by 75%, that of gases by 30% and the sulfur content by 20 - 35%. It is important to point out that all the tested modifiers increase the steel smelting temperature. The authors present a number of graphs showing the various effects of the modifiers treated. There are 7 figures.

Card 2/2

KRESCEANOVSKI, N.S. [Kreshchanovskiy, N.S.]; SIDORENKO, M.F.

Relation of steel properties in liquid and solid state. Analale
metalurgie 16 no.3:59-64 J1-S '62.

KEESHCHANOVSKIY, N.S., kand. tekhn.nauk, red.; STEPANCHENKO, N.S.,
red. izd-va; SOKOLOVA, T.F., tekhn. red.

[Making steel for shaped castings] Vyplavka stali dlia fa-
sonnogo lit'ia; trudy. Moskva, Mashgiz, 1963. 263 p.

(MIRA 16:7)

1. Vsesoyuznoye nauchno-tekhnicheskoye soveshchaniye liteynoy
sektzii TsP NTO MASHROM po voprosam vyplavki stali dlia fa-
sonnykh otlivok.

(Steel--Electrometallurgy)
(Foundries--Equipment and supplies)

KRESHCHANOVSKIY, N.S.; SIDORENKO, M.F.

Effect of inoculators on the viscosity of liquid steels. Izv.
vys. ucheb. zav.; chern. met. 6 no.9:142-144 '63. (MIRA 16:11)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii i
mashinostroyeniya i Moskovskiy energeticheskiy institut.

L 14966-63

EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3004267

8/0128/63/000/007/0029/0031

AUTHORS: Kreshchanovskiy, N. S.; Nazarenko, V. R.

TITLE: Influence of cerium on the mechanical and technological properties of steel
15Kh1M1FL 14

SOURCE: Litaynoye proizvodstvo, no. 7, 1963, 29-31

TOPIC TAGS: cerium, steel 15Kh1M1FL, plasticity, impact strength, weldability, cracking, structure, steel

ABSTRACT: Addition of cerium to chrome-molybdenum steel 15Kh1M1FL has been studied under both laboratory and shop conditions. Experimental samples were produced at TsNII TMAShE and described in "Trudy" TsNII TMAShE, 1961, No. 26. This was done in an attempt to improve the plastic properties, impact strength, weldability, and resistance to cracking of steel. Ferrocium was poured directly into the molten metal at 1500-1590C. The steel was homogenized at 1040-1060C, normalized at 900 ± 10C and annealed at 710-730C. The addition of 0.10-0.15% of cerium (producing the residual cerium content of 0.035-0.050%) greatly improved strength and plasticity of steel and stabilized these properties within narrow limits for numerous tested samples. Treated steel also became cold-short at lower temperatures. At 400-600C it showed an impact strength increase from 1.5-2.5 kg/cm² to

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ACCESSION NR: AP3004267

7.2 kg/cm². The sustained strength was not diminished by the treatment. Cerium lowered the amount of dendritic crystals, and also the size of grains. It increased the content of vanadium and molybdenum, lowered the content of iron, and increased the resistance to corrosion. It diminished gas inclusions (especially of oxygen) and lowered the phosphorus content and nonmetallic inclusions. In the amount of 0.10-0.15% it improved the weldability of steel, lowered its viscosity in the molten condition, and increased its resistance to cracking. Orig. art. has: 12 graphs and 1 photograph. 3

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 08Aug63

ENCL: 00

SUB CODE: ML

NO REF SOV: 001

OTHER: 000

Card 2/2

L 17460-63

EWP(q)/EWT(m)/BDS

AFFTC/ASD

JD

1 sheet

ACCESSION NR: AF3004784

S/0129/63/000/008/0023/0027

AUTHORS: Kreshchanovskiy, N. S.; Nazarenko, V. R.; Ry*zhkova, G. A.

TITLE: Effect of cerium on the mechanical properties of 15KhIMIF steel.

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 8, 1963, 23-27

TOPIC TAGS: 15KhIMIF steel, cerium, calcium-silicon, ferrosilicon, ferrocerium, Ce

ABSTRACT: Authors studied under laboratory and production-line conditions the possibility of improving the plastic properties and impact toughness of a steel by modifying it with cerium. The properties of the test steel were analyzed on specially cast test samples, plates and commercial objects cast into forms of a quick-drying substance on liquid glass. Authors found that cerium increases the mechanical properties of 15KhIMIF steel. The optimum quantity of cerium introduced into the steel is 0.1 to 0.15% (by calculation). The best results are obtained when the cerium is placed into the ladle or molten metal bath prior to tapping. For best elimination of non-metallic inclusions, the ferrocerium has to be put in together with calcium-silicon or ferrosilicon. The best effect from the cerium is obtained when it is put into the metal at 1500-1590C and the metal held for not more than 25 minutes after the cerium's introduction. Orig. art.

Card 1/2

L 17460-63

ACCESSION NR: AP3004784

has: 10 figures and 1 table.

ASSOCIATION: TsNIITMASH (Central scientific-research institute for heavy machinery), Khar'kovskiy turbinnyy zavod (Kharkov turbine works)

SUBMITTED: 00

DATE ACQ: 06Sep63

EXCL: 00

SUB CODE: ML

NO REF SOV: 000

OTHER: 000

Card 2/2

ACCESSION NR: AP4006249

S/0128/63/000/012/0019/0019

AUTHORS: Kreshchanovskiy, N. S. (Candidate of technical sciences); Sidorenko, M. F. (Engineer)

TITLE: Effect of modifiers on the viscosity of molten steels

SOURCE: Liteynoye proizvodstvo, no. 12, 1963, 19

TOPIC TAGS: molten steel viscosity, 40L steel, Kh15N25 steel, Kh15N25M3V3TYu steel, titanium effect, cerium effect, zirconium effect, magnesium effect, lithium effect, calcium effect, steel viscosity, steel modifier, steel modifying, modified steel, zirconium modified steel, cerium modified steel, titanium modified steel, magnesium modified steel, lithium modified steel, calcium modified steel

ABSTRACT: This work was carried out to study the effect of Ti, Ce, Zr, B, Mg, Li and Ca on the viscosity of carbon steel 40L and of alloyed steels Kh15N25 and Kh15N25M3V3TYu. Metal viscosity was determined by the method based on observing free torsional oscillations of the crucible containing molten metal and their attenuation during the periods of heating and cooling. It was determined that the curves of the 40L steel viscosity (with and without modifiers) coincided well. No viscosity hysteresis was noticed. Ce, Ca, Zr and Mg decreased the viscosity of 40L

ACCESSION NR: APL4006249

in the whole temperature range of the investigations, while B decreased it only at temperatures exceeding 1560C, and Ti increased it at all temperatures. Ce, Ca, Li and Mg decreased the viscosity of steel Kh15N25, while Zr and especially Ti increased it. The study of Kh15N25M3V3TYu showed no viscosity hysteresis phenomena. The curves of its viscosity (during heating and cooling) coincided well. It was concluded that the properties of molten alloyed steels are governed by the great quantities of Al and Ti which determine the viscosity. The homogenizing and refining action of Ce and Ca was reflected in the general lowering of steel viscosity (regardless of the steel type). Orig. art. has: 1 table and 3 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 09Jan64

ENCL: 00

SUB CODE: ML

NO REF SOV: 004

OTHER: 000

Card 2/2

KRESHCHANOVSKIY, N.S.; SIDORENKO, M.F.

Effect of smelting temperature conditions on the viscosity of
liquid high-alloy steel. Izv. vys. ucheb. zav.; chern. met.
6 no.11:60-64 '63. (MIRA 17:3)

1. Moskovskiy energeticheskii institut.

ACCESSION NR: AT4016068

S/2698/63/000/000/0235/0238

AUTHOR: Kreshchanovskiy, N. S.; Nazarenko, V. R.

TITLE: Effect of cerium on the mechanical properties of cast, high temperature, 15Kh1M1FL steel

SOURCE: Soveshchaniye po teorii lityny*kh protsessov. 8th, 1962. Mekhanicheskiye svoystva litogo metalla (Mechanical properties of cast metal). Trudy* soveshchaniya. Moscow, Izd-vo AN SSSR, 1963, 235-238

TOPIC TAGS: cerium admixture, heat resistant steel, steel 15Kh1M1FL, high temperature casting, casting, alloy steel, steel, perlitic steel, high temperature steel

ABSTRACT: Several new grades of high-temperature perlitic steel have recently been introduced for work under conditions of high temperature and pressure, including the grades 20KhMFL and 15Kh1M1FL (0.14-0.20% C, 0.15-0.37% Si, 0.4-0.7% Mn, maximum of 0.03% S, maximum of 0.03% P, 1.2-1.7% Cr, 0.9-1.2% Mo and 0.25-0.40% V). However, despite the good mechanical properties of the latter steel, it still shows a number of undesirable characteristics such as highly variable plasticity and notch toughness, as well as low crack resistance and weldability. In order to improve the plasticity and impact strength of 15Kh1M1FL steel, the Khar'kovskiy turbinny*y zavod im. S. M. Kirova (Khar'kov Turbine Plant) therefore carried out a series of experiments on the modification of this steel with cerium. The steel was smelted in

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a 50 kg induction furnace and the Ce was added either as mixed metal or as FeCe. The results show that the addition of cerium improved both the strength and the plasticity of the steel. The addition of 0.1-1.5% cerium resulted in the best mechanical properties (by spectral analysis, the residual content of cerium was 0.035-0.06%). When 0.15% cerium was added the impact strength increased more than three fold and the relative elongation increased 1.5 fold. The addition of cerium facilitated the production of a cast steel with more uniform mechanical properties. Cerium also lowered the brittleness of the steel. Between 400 and 650C there was an inverse relationship between the tempering temperature and brittleness. The durability remained unchanged when cerium was added, and the quantity of harmful non-metallic enclosures was decreased. Crystalization was also improved. The best technique for adding the cerium was addition of FeCe to the ladle or hopper into the furnace one or two minutes before the metal discharge. (The metal temperature should be between 1500 and 1590 C when the cerium is added.) Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: MM

DATE ACQ: 27Dec63

NO REF SOV: 000

ENCL: 00

OTHER: 000

Card 2/2

L 39988-65 EPF(c)/EPF(n)-2/EPR/EG(j)/EPA(s)-2/EMP(z)/EWA(c)/EAT(m)/EWP(b)/T/EWA(d)/
EWP(t) Pr-4/Ps-4/Pt-10/Pu-4 IJP(c) WJ/MJW/JD/JG/GS

ACCESSION NR: AT4048720

S/0000/64/000/000/0238/0242

AUTHOR: Kreshchanovskiy, N. S.; Sidorenko, M. F.; Trekalo, A. S.

TITLE: Effect of rare earth metals on some properties of austenitic chromium nickel steels

SOURCE: Vsesoyuznoye soveshchaniye po splavam redkikh metallov, 1963. Voprosy teorii i primeneniya redkozemel'nykh metallov (Problems in the theory and use of rare-earth metals); materialy soveshchaniya, Moscow, Izd-vo Nauka, 1964, 238-242

TOPIC TAGS: steel, chromium nickel steel, cerium, lanthanum, yttrium, iron silicide, rare earth admixture, austenitic steel, steel mechanical property, cast steel, steel weldability / Kh15N25M3V3TYu steel

ABSTRACT: Previous papers by N. S. Kreshchanovskiy and M. F. Sidorenko have shown that cerium significantly affects the physical properties of liquids melts: surface tension, viscosity, electrical conductivity and supercooling. Lowering the viscosity leads to a liquid melt of higher homogeneity, yielding higher stability of the mechanical properties. The present paper investigates the effect of cerium, lanthanum and yttrium on the plastic properties, resiliency and weldability of cast

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L 39988-65

ACCESSION NR: AT4048720

austenitic steel, grade Kh15N25M₃V3TyU. The addition of cerium (0.05-0.5%) decreases the quantity of admixtures in the steel without changing the main chemical composition. Caverns appear when cerium is added due to the shifting and accumulation of vacancies caused by metal deformation. Cerium oxides are the main causes of these caverns, and can be eliminated by first oxidizing the steel. When 0.05-0.1% cerium is added the plastic properties and resiliency of steel are increased. Larger amounts, however, lower the plastic properties, resiliency and strength. Weldability is highest when 0.05-0.1% Ce is added, and cracks appear when 0.3-0.5% cerium is added. In this case, Ce also purifies the metal of admixtures and improves the crystalline bond. Since Ce is a surface active substance it is adsorbed at the surface between the crystals, thus retarding all processes connected with dislocation shifting. The authors also investigated the effect of cerium on dislocation distribution in iron silicide (0.09% C, 2.3% Si). With cerium, the dislocations form rows in a three-dimensional network, thus affecting the mechanical properties of cast iron. The addition of lanthanum and yttrium to Kh15N25M3V3-TYu steel does not change the mechanical properties at room temperature. However, the properties of steel with added misch metal, lanthanum and yttrium are signi-

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ACCESSION NR: AT4048720

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ficantly improved, especially when 0.1-0.15% is added. Cerium aids coagulation and redistribution of hardening phases, ensuring elimination of admixtures from the steel. It is noted that lanthanum and yttrium are more effective in improving the plasticity and resiliency of steel than misch metal. Orig. art. has: 4 figures.

ASSOCIATION: None

SUBMITTED: 13Jun64

ENCL: 00

SUB CODE: MM

NO REF SOV: 002

OTHER: 001

Card 3/3 p/b

SIDORENKO, M.F.; KRESHCHANOVSKIY, N.S.

Refining effect of rare-earth metals. Izv. vys. ucheb. zav.; Chern. met.
8 no.7:46-49 '65. (MIRA 18:7)

1. Moskovskiy vecherniy metallurgicheskiy institut.

MALKIN, I.P.; KRESHCHANOVSKIY, N.S.

Making austenitic chromium-tungsten steels alloyed with
nitrogen. Izv. vys. ucheb. zav.; Chern. met. 8 no.11:157-63
1965. (MIRA 18:18)

1. Tsentral'nyy nauchno-issledovatel'skiy institut tekhnologii
i mashinostroyeniya i Nauchno-issledovatel'skiy institut
tyazheloego mashinostroyeniya Ural'skogo zavoda tyazheloego
mashinostroyeniya imeni Sergo Orizhnikovskogo.

KRESHCHANOVSKIY, N.S., kand. tekhn. nauk; SIDORENKO, M.P. kand. tekhn.
nauk; TREKALIO, A.S., inzh.

Role of nonmetallic inclusions in the failure of cast steel.
lit. proizv. no.11:29-31 N '65. (MIRA 18:12)

L 20786-66 EWT(m)/I/EWA(d)/EWP(w)/EWP(t) IJP(c) JD

ACC NR: AP6005748

SOURCE CODE: UR/0128/65/000/010/0037/0038

AUTHOR: Kreshchenovskiy, N. S. (Candidate of technical sciences); Sidorenko, M. F. (Candidate of technical sciences)

ORG: none

TITLE: Effect of metallic calcium on the structure and properties of cast high-alloy chromium-nickel steels

SOURCE: Liteynoye proizvodstvo, no. 10, 1965, 37-38

TOPIC TAGS: high alloy steel, calcium, mechanical property, weldability, ductility, desulfurization

ABSTRACT: Cr-Ni steels of the Kh15N25 type, additionally alloyed with Ti, W, Mo, Al and Nb, were treated with metallic Ca in amounts of 0.05, 0.01, 0.3, and 0.5%, while in the ladle, and poured into wedge-shaped molds at 1550°C. Specimens taken from the molds were tested for mechanical properties and weldability. Findings: the addition of Ca to high-alloy steels reduces the hysteresis of their ductility curves and affects their crystallization in the sense that the dendrite structure undergoes marked changes -- decrease in the length and thickness of the first- and second-order axes and in the spacing between the axes. Such changes appear only when up to 0.0-0.4% Ca is added; any further increase in the Ca content leads to an intense growth and rami-

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L 20786-66

ACC NR: AP6005748

3
fication of columnar crystals. Measurements of hardness in the tempered specimens (water quenching from 1200°C with tempering for 10 hr at 800°C) indicate that Ca inhibits the processes of the segregation and coagulation of secondary phases. Ca markedly increases the density of cast steel, improving the impregnability of interdendritic spaces owing to the decrease in the steel's ductility and surface tension. Contrary to the expectations, the addition of Ca to these steels did not lead to any marked changes in their S and P content, since the process of the desulfurizing of steel by Ca is considerably complicated by the fine-dispersity of the sulfides, which are difficult to remove from the melt. Further, the nitrides of Ca are unstable at melting temperatures and hence the nitrogen content of these steels does not decrease. Ca does not affect the redistribution of Sn in the cast steel but it inhibits the diffusion of Sn during high-temperature annealing. On the other hand, Ca improves the weldability of some of these steels. Thus, altogether, the effect of Ca on the properties of steels is many-sided and can be determined only through a comprehensive investigation of the properties of metal in liquid and solid states. To produce a maximum effect, metallic Ca should be added to steel directly prior to its tapping from the furnace or into the ladle. Orig. art. has: 10 figures.

SUB CODE: 11, 13, 20/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 000

Card 2/2

L 26036-66 EWT(m)/EWP(w)/EWA(d)/T/EWP(t) IJF(c) JD

ACC NR: AP6008865 (N)

SOURCE CODE: UR/0128/65/000/011/0029/0031

AUTHOR: Kreshchanovskiy, N. S. (Candidate of technical sciences); Sidorenko, M. F. (Candidate of technical sciences); Trekalo, A. S. (Engineer)

ORG: none

TITLE: Role of nonmetallic inclusions in the fracture of cast steel

SOURCE: Liteynoye proizvodstvo, no. 11, 1965, 29-31

TOPIC TAGS: crystal dislocation, surface active agent, austenitic steel, plasticity, nonmetallic inclusion, cast steel, material fracture, tensile strength, recrystallization temperature, induction furnace, metal melting, metallographic examination, plastic deformation/ 10Kh15N25 austenitic steel

ABSTRACT: 10Kh15N25 austenitic Cr-Ni steel was melted in a 50-kg basic induction furnace, with addition of Al, Si, Ca and Ce for the purpose of final deoxidation. Specimens of this steel (5 mm in diameter, 50 mm in length) were subjected to short-term static tensile tests at 20 and 650°C. Subsequent metallographic examination of the surfaces of fracture revealed the presence of closed cavities, conditionally termed caverns, which develop around nonmetallic inclusions in the part of the specimen that underwent plastic deformation and for the metal tensile-tested at 650°C resemble microcracks. The nonmetallic inclusions are represented by spinel, corundum, silicates, Ce oxides, and Ce sulfides and oxysulfides. The caverns and cracks run in the direction in which the load is applied and their shape and size depend on the shape, size and

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UDC: 621.746.79:669.141.25

L 26036-66

ACC NR: AP6008865

properties of nonmetallic inclusions and the degree of plastic deformation of the metal during testing. The distribution of dislocations investigated as a function of the plastic deformation of specimens warrants the assumption that the caverns form as a result of the plastic deformation of the regions of metal adjoining the nonmetallic inclusion, owing to the migration of the most mobile dislocations and their settlement at the metal-inclusion interface. As the degree of plastic deformation increases, the dislocations become arrayed along slip lines, bypassing the nonmetallic inclusions. The reason for fracture is the formation of dislocation pile-ups of a critical density at the moment when the metal's plasticity is exhausted; as the metal gets stretched at temperatures somewhat above recrystallization temperature (500-600°C), the caverns forming around the nonmetallic inclusions develop into cracks along which the metal ultimately fractures. Thus, nonmetallic inclusions are detrimental to the tensile strength of the investigated austenitic steel, at test temperatures somewhat above the recrystallization temperature, while at the same time enhancing the metal's plasticity. The deoxidizing agent, unless it is a surface-active element, enhances the softening temperature of the metal of the stressed zones and thus prevents the development of caverns into cracks. Thus, the role of nonmetallic inclusions in the processes of the plastic fracture of cast metal must be primarily related to the test temperature as well as to the character of fracture (ductile or brittle) and apparently also to the method of loading. For steels with more than one phase and with a large number of alloy elements the determination of the role

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L 26036-66

ACC NR: AP6008865

of nonmetallic inclusions is much more complicated, since then the movement of dislocations in the process of plastic deformation is chiefly determined by the amount and dispersity of the hardening phases. Orig. art. has: 6 figures, 3 tables.

SUB CODE: 11, 13, 20/ SUBM DATE: none/ ORIG REF: 003/ OTH REF: 002

Card

3/3

PB

L 04724-51 EWP(m)/EWP(v)/EWP(t)/EIL/EWP(k) LIP(c) JP/IM

ACC NR: AP6025815

(A)

SOURCE CODE: UR/0128/66/000/005/0032/0033

AUTHOR: Kreshchanovskiy, N. S. (Candidate of technical sciences); Nazarenko, V. R. (Candidate of technical sciences) 46
44
B

ORG: none

TITLE: Effect of cerium on certain properties of pearlitic cast steel 27

SOURCE: Liteynoye proizvodstvo, no. 5, 1966, 32-33

TOPIC TAGS: PEARLITIC steel, molten metal, cerium, castability / 15Kh1M1F steel

ABSTRACT: The effect of Ce on the viscosity, surface tension and casting qualities of 15Kh1M1F steel in molten state was investigated by adding up to 0.4% Ce in the form of ferro-cerium to the induction-furnace melt. Viscosity was tested by the torsional vibration method; surface tension, by the method of maximal pressure in a gas bubble, and casting qualities, by spiral tests. Findings: the addition of 0.1% Ce reduces the viscosity of this steel and markedly lowers the temperature of its homogeneous state, i.e. the critical temperature that must be reached during melting in order to attain maximal plastic properties of the steel in its subsequent solid state. On the other hand, the addition of 0.4% Ce increases viscosity and

Cord 1/2

UDC: 669.15-194.53;669.855

I. 04724-57

ACC NR: AP6025815

2
leads to the formation of a large amount of heavy sulfides. Further, Ce reduces the surface tension of 15Kh1M1F steel, which points to the surface activity of Ce and its influence on dendritic crystallization -- the grain size of the steel -- in the sense that Ce promotes a finer and more uniformly distributed grain size throughout the ingot. As regards casting qualities of this steel, the addition of up to 0.15 % Ce markedly improves its fluidity and causes ingots of this steel to be virtually crackproof. The weldability of this steel is then also enhanced. Orig. art. has: 5 figures, 2 tables. 16

SUB CODE: 13, 11/ SUBM DATE: none/ ORIG REF: 004

Card

2/2 *exp*

KRESHCHIK, T.; TARLE, L.

The method of assembly-line construction and combining operations.
Na stroi.Ros. 3 no.9:13-15 S '62. (MIRA 15:12)

1. Glavnyy inzh. Glavrostovstroya (for Kreshchik). 2. Zamestitel'
nachal'nika Glavrostovstroya (for Tarle).
(Taganrog--Industrial plants)

KRESHCHIK, T.S.

Rapid construction of a five-story apartment house in Rostov-on-Don by assembly-line construction and combining operations.
Trudy MIEI no.15:205-211 '61. (MIRA 14:12)

1. Zamestitel' nachal'nika upravleniya stroitel'stva Glavrostovstroy, Rostov-na-Donu.

(Rostov-on-Don-Construction industry)
(Apartment houses)

KRESHCHUK, V. (Krytichsky rayon, Irtutskaya oblast')

Always in front. Zemeladali 27 no. 5134-16 for '66.

(MIRA 1816)

KRESHCHIK, V.S., inzh.; KLIMENKO, O.G., inzh.; TIRATSUYAN, A.V., inzh.

Powder metal products and nylon plastics used in friction
units of agricultural machines. 'shinostroitel' no.2:31-32
F '60. (MIRA 13:5)

1. TSentral'naya zavodskaya laboratoriya.
(Bearing metals) (Plastic bearings)

KRASNOHENKO, I.V.; KRECHENKO, V.I.; ...

Determining oxygen content in ... 40.6:49-
52 Jo '05. (MIRA 18:8)

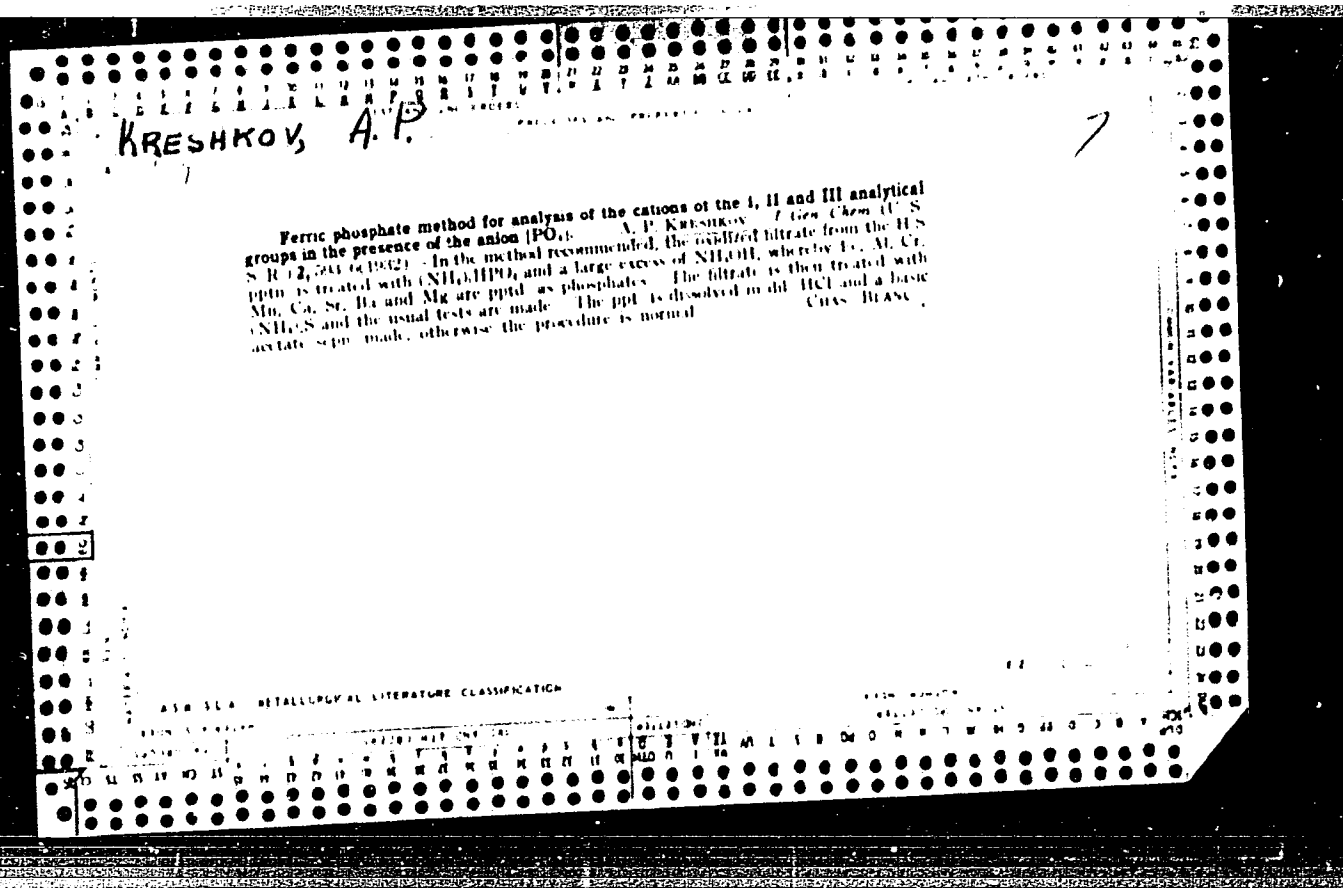
1. Rostovskiy-na-Donu institut ...
stroyeniya.

ZALESSKIY, V.I., prof.; KRESHCHISHIN, T.T., inzh.

Dependence of 1Kh18N9T steel properties on forging conditions.
Sbor.Inst.stali no.39:226-249 '60. (MIRA 13:7)

1. Kafedra kuznechno-shtampovochnogo proizvodstva Moskovskogo
ordena Trudovogo Krasnogo Znameni instituta stali im. I.V.
Stalina.

(Steel forgings) (Mechanical wear)



10

CA

Hydrosy acids obtained during oxidation of paraffin by air. P. P. Shorulgin and A. P. Kreshkov. *J. Gen. Chem.* (U. S. S. R.) 3, 825-30(1933).—The subject of this investigation was the so-called HO acids obtained as by-products during the captl. oxidation of paraffin (m. p. 22°) by air at 100°. This work was the first attempt at a chem. study of these mixts. which may acquire some importance, e. g., in the dye industry. They were found to consist of HO acids proper, lactones, lactides, fatty acids and their anhydrides, paraffin hydrocarbons, partly oxidized or entirely not oxidized, volatile matter and moisture. They could not be distd. without decompn. even in a high vacuum. Preliminary esterification of the carbonyl groups with MeOH and HCl was used as the Me esters of HO acids are more volatile than the acids themselves and may be distd. in vacuo, allowing their sepn. into fractions. These fractions were found to be not chem. compds. but mixts. of esters of HO acids, the av. compn. corresponding to Me esters from C₁₂H₂₆(OH)CO₂Me to C₁₈H₃₈(OH)CO₂Me. Robert Schless. *Marasmino*. Ernst Spath and Julius Zellner. *Monatsh.* 64, 123-8(1934). - Marasmino (C. A. 23, 3000) is impure l-leucine and is therefore to be stricken from the literature C. J. West

ASTM 31.4 METALLURGICAL LITERATURE CLASSIFICATION

10

The hydroxy acids obtained by the oxidation of paraffin with air. P. P. Shorudgin and A. P. Kreshkov. *J. Gen. Chem.* (U. S. S. R.) 4, 988-94(1954); cf. *C. A.* 28, 6106⁶.—In confirmation of earlier work the products obtained by the oxidation of paraffin with air have been shown to consist of HO acids, lactones, lactides, anhydrides, carboxylic acids, incompletely oxidized products, volatile substances and H₂O. By treatment with Me₂SO₂ in alk. soln. all CO₂H groups were methylated but no OH groups. Pptn. of the Cd salts was useful in sep. the HO acids. Data. of OH (Zerevitinov) indicated that lactonization occurred readily with a portion of the HO acids. Data. of the Me esters produced an increase in the i no. indicating the presence of β -HO acids. Both straight- and branched-chain compds. were found, including the following: C₁₁H₂₂O₄, C₁₁H₂₀O₄, C₁₁H₁₈O₄.

C₁₁H₁₈O₄, C₁₁H₁₆O₄, C₁₁H₁₄O₄ (2 isomers), C₁₁H₁₂O₄, C₁₁H₁₀O₄ (3 isomers), C₁₁H₈O₄, C₁₁H₆O₄ and C₁₁H₄O₄. Comparison of the m. ps. of these HO acids with those found in the literature for compds. with the same no. of C atoms showed that the m. ps. of the former were always lower, indicating a more highly branched structure of the new acids or that these acids were mixts. of closely related isomers. Lewis W. Butz

ASB-31A METALLURGICAL LITERATURE CLASSIFICATION

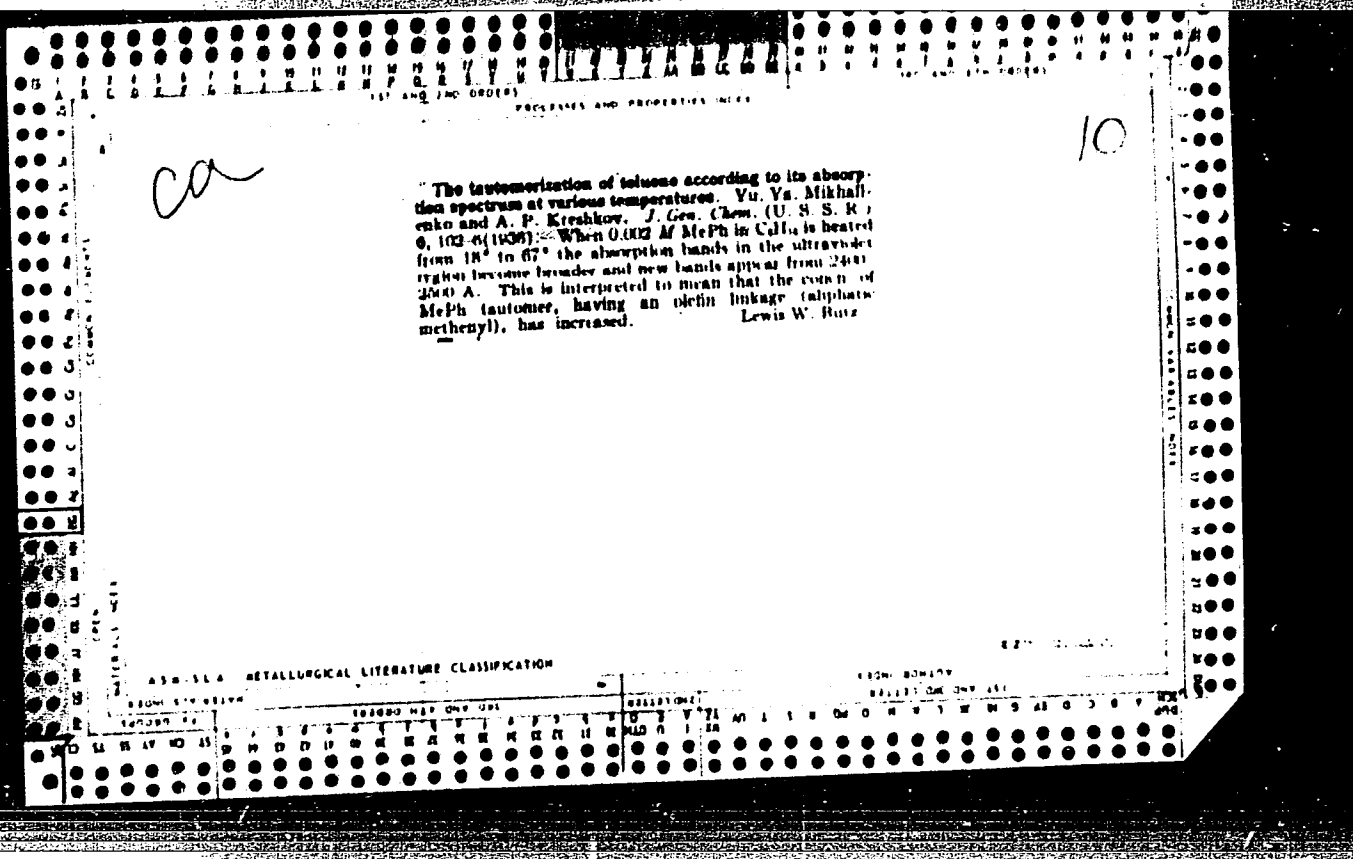
EDN: 177-0317

103003 MAP ONY CAC

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031117 CAC ONY CAC



18

Ca

Sodium phosphate. Ya. I. Mikhailenko and A. P. Kreslikov. Russ. 51,806, Oct. 31, 1937. Ferrophosphorus is fused with pyrite and the melt is exd. with HCl. The cat. is treated with NaOH to form Na phosphate and ppt. Fe(OH)₃.

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND CROST PROCESSING AND PROPERTIES INDEX

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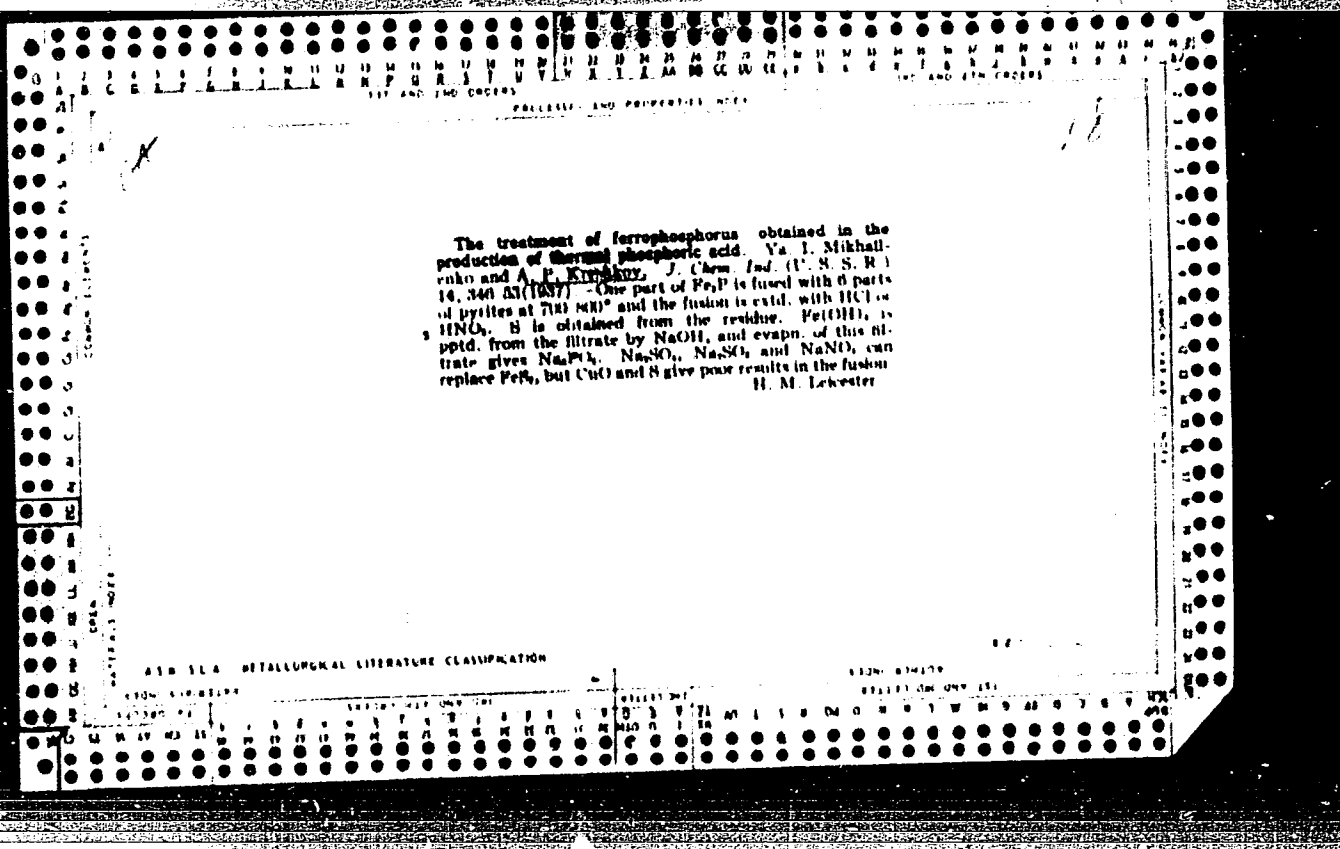
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1ST AND 2ND ORDERS																										PROCESSES AND PROPERTIES INDEX																									
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1ST ORDER													2ND ORDER													1ST ORDER													2ND ORDER												
<p>Sodium phosphate. A. P. Kreshkov and Ya. I. Mik- hailenko. Russ. Izv. vuz. MA 65 31, 1968. Ferro phos- phorus is fused with Na_2CO_3 and NaNO_3.</p>																																																			
<p>ASAC-51A METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			

18

CO

Processes and Properties Index

Sodium phosphate. A. P. Kreshkuy and Ya. I. Mikhailenko. Russ. 52, 1957, March 31, 1958. Ferro-phosphate is fused in the absence of air with a mixt. of Na_2SO_4 and Na_2CO_3 .

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

SEARCHED INDEXED

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CA

Oxidation of toluene to benzyl alcohol, benzaldehyde and benzoic acid with a mixture of chlorine in water vapors. A. P. Kreshkov. *Org. Chem. Ind. (U. S. S. R.)* 5, 551-3 (1958). Hot mixts. of vaporized PhMe and Cl in water vapor were passed over porous substances (pumice, tile, porcelain, etc.) and V_2O_5 , MoO_3 and other catalysts at 150-700°. Up to 78.4% PhMe reacts in the 1st circulation with a total loss of 3.6% PhMe. Yields up to 12.6% $PhCH_2OH$, 78% BzH and 15% BzOH are possible at 300-80°. The reaction mixts. contain no org. chlorides and anthraquinone. By varying the velocity of reaction the yield of BzOH can be increased to 72% and that of $PhCH_2OH$ and BzH correspondingly decreased. Twenty references.

Chus. Blanc

18

Some reactions of ferrophosphorus obtained in the production of thermal phosphoric acid. A. P. Kravchuk. *J. Chem. Ind. (U. S. S. R.)* 19, No. 4, 34-9 (1980); cf. *C. A. 31, 5114*.--When 1 mol. of Na_2CO_3 , 2 mols. of Fe_2P and 3 mols. of Na_2SO_4 are fused in a closed crucible at 700° , 90% Na_2PO_4 is obtained when the melt is leached with H_2O . No O_2 is needed in this reaction. Less satisfactory results are obtained when CaCO_3 or CaSO_4 is used, or when Na_2SO_4 is replaced by KIO_3 , KClO_4 or KClO_3 . HCl and H_2O do not attack Fe_2P at 600 - 1000° . Moist Cl_2 attacks it somewhat, but this is probably due to O released by HClO_4 . H. M. Leicester

ASB-11A METALLURGICAL LITERATURE CLASSIFICATION

BC

23

Electronic interpretation of the halogenation of toluene. A. R. KAMENKOV (J. Gen. Chem. Russ., 1939, 9, 1251-1257).—Theoretical. The author introduces the term "electronization" to denote the electron density surrounding a given atom, which is affected both by structure and external conditions, and explains the behaviour of PhMe in terms of this. Side-chain halogenation is due to tautomerism which includes as one of the limiting phases one with a semicyclic double linkage (Schörlin); this form is favoured by external activation. G. A. R. K.

Moscow Chem-Tech. Inst. in. Mendeleev

ASB-11A METALLURGICAL LITERATURE CLASSIFICATION

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100	100	100	100

Chlorination of toluene in the presence of water. A. A. Kreshkovskii. *Applied Chem.* (U. S. S. R.) 12, 1702 (in French, 1709) (1939).—The chlorination was carried out in the presence of V_2O_5 , $MgCl_2$ + MgO + $CuCl_2$, $MgCl_2$ + MgO + $MnCl_2$, $Ni(NO_3)_2$ on pumice, activated C, MoO_3 on pumice, and V_2O_5 + WO_3 . It was found that PhMe is chlorinated by Cl in the presence of water at 200–450°. In the case of an insufficiently high temp. the orientation of Cl is caused by the water toward the benzene ring of the toluene, while at elevated temps. the Me group of PhMe is oxidized. Among the reaction products were found, in addn. to the unreacted PhMe, PhCl, o- and p- CH_2Cl , benzyl alc., BzH and $BrOH$. The presence of oxidation products is explained through the sapon. of the chlorination products of the lateral toluene chain, and through the oxidation of the Me group of PhMe by the O freed in the reaction between Cl and H_2O taking place at elevated temps. 16 references. A. A. Roshilovskii

6

cs

PROCESSING AND PREPARATION

The reaction of chlorine with water vapor. A. P. Kreshkov. *J. Chem. Ind. (U. S. S. R.)* 16, No. 15, 41 (1930). At high temp. Cl reacts directly with H₂O to form HCl and liberate free O. If any oxidizable substance is present, oxidation takes place. In this way, Fe is converted to Fe₂O₃, and some FeCl₃, C to CO₂, and sulfur to SO₂, SO₃ and PhCl₃. H. M. L.

ASA-31A METALLURGICAL LITERATURE CLASSIFICATION

FROM SOURCE

SEARCHED MAP ONLY USE

CLASSIFIED

CLASSIFIED FOR USE

18

Na phosphate. A. P. Kreshkov and Ya. P. Mikhailenko. Russ. 58,370, Nov. 30, 1940. Fe-P is fused in the absence of air with Na_2SO_4 or a mixt. of Na_2CO_3 and Na_2SO_4 , and the melt is dissolved in water and worked up in the usual manner.

117 AND 120 COLUMNS										118 AND 121 COLUMNS									
PROCESSES AND PROPERTIES INDEX																			
<p><i>Ca</i></p> <p>Synthetic methods for the preparation of hydrogen chloride. A. P. Krasnov and M. F. Shurygin. <i>Uspehi Khim.</i> 9, 1264-77 (1940).—The kinetics and thermodynamics of the reactions $H_2 + Cl_2$, $Cl_2 + H_2O$, $Cl_2 + H_2O +$ some third substance, and $Cl_2 +$ org. substance (hydrocarbon) are discussed. F. H. Rathmann</p> <p><i>2</i></p>																			
<p>COMMON ELEMENTS</p> <p>COMMON TABLES INDEX</p> <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>12000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000 120000</p>																			

"Obtaining Formaldehyde from Methane," Zhur. Obshch. Khim., 10, No 17, 1940. Moscow
Chemico-Technological Inst. imeni D. I. Mendeleev Received 17 April 1940

Report U-1610, 3 Jan 1952

[illegible]

[illegible]

4

31

Organosilicon compounds a new source of raw materials for the production of synthetic resins. A. P. Kreshkov and G. S. Petrov. *Khim. Pril.* 1944, No. 8, 1017. A general discussion of organosilicon polymers, their production, and uses. M. U.

Modified urea formaldehyde resins. G. S. Petrov, A. P. Kreshkov, and A. D. Suvonko. U.S.S.R. 67,925, February 1977. The water resistance of urea-CH₂O resins is enhanced by modifying them with polymers of ethyl orthosilicate. M. Howh.

ASAC DETAIL: COMBAT LITERATURE CLASSIFICATION

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PROCESSES AND PROPERTIES INDEX

New types of synthetic rubber and lacquer based on silicon. A. P. Kreshkov and K. P. Kaluzhenina. *Leg-
kaya Prom.* 7, No. 1, 38-9(1947).—A report on the struc-
ture and properties of silicone products. M. Sittig

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

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10

Preparation of silicic acid esters of synthetic hydroxy acids obtained by air oxidation of paraffin. A. P. Kreshkov (Mendeleev Chem. Tech. Inst., Moscow); J. Gen. Chem. (U.S.S.R.) 17, 81-6(1947) (in Russian).—SiCl₄ and Si(OEt)₄ were made to react with pilot-plant products (hydroxy carboxylic acids and their Me esters) obtained by oxidation of paraffin at 100° and corresponding in properties to materials used in earlier studies (K. and Shorygin, C.A. 28, 6100°; 29, 2147°). SiCl₄ failed to yield the expected esters; its action was that of initial dehydration followed by addn. of SiCl₄ to the double bond as Cl—SiCl₃, the latter being converted to —CHCl—CH(SiO₂H)— after treatment with H₂O. (EtO)₄Si reacts with the HO acids with formation of free silicic acid and of a viscous product which is apparently a mixt. of condensates of partially hydrolyzed silicic esters. Only the reaction of (EtO)₄Si with Me esters of the OH acids led to the desired silicic esters. The crude OH acids were purified by soln. in 10% NaOH, washing with petr. ether, acidification of the alk. layer, and extrn. with Et₂O; after removal of the Et₂O the product had 0.35% moisture, acid no. 173.3, sapon. coeff. 2.00, iodine no. 2.2, OH 9.1%. The Me esters were prep'd. by repeated treatment with Me₂SO, followed by treatment with HCl in MeOH; the Me₂SO was used in 10% excess and the reaction was conducted in the presence of 30% NaOH at 30–40° with stirring; the Me esters had the following consts: acid no. 8.0, sapon. coeff. 248.2, iodine no. 1.9, MeO 10.1%, OH 0.2%. The OH acids or their Me esters were treated in an inert solvent with a 10% excess of either SiCl₄ or (EtO)₄Si over 1–1.5 hrs. with cooling, then heated 0.5–1.0 hr. The products from SiCl₄ were viscous undistillable masses which contained much free silicic acid; the org. sol. portion had 61.2% SiO₂ after drying at 105° and the org. insol. portion 7.4% SiO₂, iodine no. 53.2, Cl 1.8%. The products of the reaction of (EtO)₄Si with the OH acids were undistillable viscous masses which had 60.5% SiO₂ in the org. insol. fraction, 3.3% SiO₂ in the org. sol. fraction which had an iodine no. 2.6 and 0.2% OH; deposition of these on surfaces gave films unaffected by org. solvents, acids, or H₂O. The reaction products of (EtO)₄Si and the Me esters were oils which could be partially distd. in high vacuums at above 250°; iodine no. of the org. sol. fraction 2.2, SiO₂ in the org. sol. fraction 5.5%; SiO₂ in the distd. fraction 8.0%, OH 0.6%.

G. M. Kosolapoff

ASH-11A METALLURGICAL LITERATURE CLASSIFICATION

510. New reactions with thiocyanates. A. P. Kuznetsov and S. S. Vinogradov. *J. Anal. Chem. U.S.S.R.*, 3, 11, 1948. Two new qualitative reactions of thiocyanates have been found: (1) by obtaining canarin, pseudothiocyanic, hydroperthiocyanic and isoperthiocyanic acids by evaporation of the thiocyanate solution with an excess of potassium chlorate and subsequent heating of the residue; (2) on the basis of molybdenum thiocyanate formed by reaction of a thiocyanate solution with an ammonium molybdate solution saturated with excess nitric acid (1 : 5) in the presence of small quantities of reducing agents. The compound obtained has an orange yellow coloration and is extracted by ether or amyl alcohol. The reactions described are sufficiently sensitive, and do not require any elaborate apparatus or unusual reagents, solids, acetates, etc., which prevent the use of ferric salts as reagents, do not in this case interfere.

CIA-RDP86-00513R0008264100

7

NEW quantitative test for ferrocyanides. A. P. Krasnikov and S. S. Vû'borg. *Zhur. Anal. Khim.*, 3, 250-2(1937). The method is based on the oxidation of tertiary fatty aromatic amines, e.g., dimethyl- or diethylaniline, by $\text{Fe}(\text{CN})_6^{4-}$. The reaction products are intensely bright orange. The reaction is carried out in H_3PO_4 medium and preferably in the presence of a Zn salt. The Zn salt, 1 ml. of a satd. soln. of ZnSO_4 , should be added last. The sensitivity of this test is 0.07-0.1 mg. $\text{Fe}(\text{CN})_6^{4-}$ per ml. Ferrocyanide does not interfere. Strong oxidizing agents should not be present. M. Hosh.

ASD SLA METALLURGICAL LITERATURE CLASSIFICATION

Ch. 16.

82-1-112, 113, 114

✓ Use of organo-silicon compounds in production of special ceramics and glass products. A. P. Kreshkov (Sov. Keram. Prom., 1948, 8, No. 3, 14; *Izv. Akad. Nauk*, 1948, 274a).—The valuable properties of organo-Si compounds for use in insulators, building materials, and refractories are described. Mixtures of these with highly refractory metallic oxides are particularly useful. R. B. CLARKE.

CA

13

New silicate products, based on siliconorganic compounds
A. P. Kreshkov. Doklady Akad. Nauk S.S.S.R. 59, 724 (1958). General reaction schemes are given for partial hydrolysis of esters of orthosilicic acid and condensation of the products, and for Grignard-like reactions of silicon-aryl and alkylhalides. The similarity of silicones to silicates and SiO_2 glass is discussed. The SiO_2 tetrahedral group is the leading principle for such analogies, with the Si-O distance 1.65 Å. The use of silicones as binders, as catalysts, adsorbents, and plasticizers are discussed (cf. Abramson, C.I. 41, 3288e). Slip casting, pressing of plastic bodies, or dry mixes, etc., are special fields of ceramics in which silicones are helpful. W. Eitel.

Abs. - J 50054

KRESHKOV, A. P.

Kreshkov, A. P. - "Problems in lecturing on analytical chemistry", Vestnik vyssh. shkoly, 1949, No. 4, p. 12-16.

SO: U-411, 17 July 53, (Letopis 'Zhurnal 'nakh Statey, No. 20, 1949).

CA

7

Analysis of silicon organic compounds. I. Analysis of alkoxy, alkyl, and aryl derivatives of silane. A. P. Kreshkov and G. D. Nosonova (Mendeleev Inst. Chem. Technol., Moscow). *Zhur. Anal. Khim.* 4, 220-6 (1949). Alkoxy groups were detd. in $\text{Si}(\text{OC}_2\text{H}_5)_4$, b. 121°,

and $\text{Si}(\text{OC}_2\text{H}_5)_4$, b. 168°. Carry out the detn. in an app. comprising a reaction vessel having an inlet tube for CO_2 and connected by a side tube to a wash bottle. Fill the latter $\frac{1}{2}$ full with 1:1 mixt. of 5% $\text{Na}_2\text{S}_2\text{O}_3$ and CdSO_4 soln. Connect the wash bottle by a 2nd side tube to an absorption tube charged with 15 ml. of a 10% of NaOH in concd. AcOH to which 6-7 drops of Br_2 . Place 20-30 mg. of the compl. sealed in an ampul inside the reaction flask and add 7-10 ml. of HCl . Crush the ampul with the CO_2 inlet tube. Heat the reaction flask for 40 min. on a steam bath and then on a glycerol or H_2PO_4 bath at 125-30° for 60 min. for the Me deriv. or 90 min. for the Et deriv. Transfer the contents of the absorption tube to a 250 ml. Erlenmeyer flask, add 1-1.5 g. of dry NaOAc and 100-150 ml. H_2O . Decolorize excess Br_2 with a few drops of HCOOH , add 1-1.5 g. of KI , 5-10 ml. of dil. HCl and after 5 min., titrate I with $\text{Na}_2\text{S}_2\text{O}_3$ soln. Det. C, Cl, and Si on the 2 preceding compls. and also on diethyldichlorosilane and diphenyldichlorosilane. To det. C in $\text{Si}(\text{OC}_2\text{H}_5)_4$ and $\text{Si}(\text{OC}_2\text{H}_5)_4$, digest a 40-70-mg. sample with 20-25 ml. of concd. H_2SO_4 and 1-1.5 g. of KIO_3 at 165-185° for 30-35 min. Carry out this detn. in a nitrometer and det. the vol. of CO_2 after bringing the whole system to room temp. Digest the diethyl- and diphenyldichlorosilanes with a mixt. of CrO_3 , H_2PO_4 , H_2SO_4 , and KIO_3 . To det. S, digest the compls. as for C detn. After cooling, transfer the digested mixt. to a 200-300-ml. beaker filled with H_2O . Filter the pptd. SnO_2 , wash, ignite, and weigh. Det. Cl, if attached to Si, in the usual manner. In diethyl- and diphenyldichlorosilane hydrolyze Cl to form free HCl and then det. argentometrically or by neutralization.
M. Hosh

KRESHKOV, A. P.

Mbr., Moscow Order of Lenin Chemico-Technological Inst. im. D. I. Mendeleev,
-1942-c51-.

"Research on the Process of Obtaining Methyl and Ethyl Esters of Orthosilicic
Acid," Zhur. Obshch. Khim., 14, No 4, 1949.

KRESHKOV, A. P.

Kreshkov, A. P. and Myshlyayeva, L. V. - "The increase in the water resistance of gypsum made articles," Trudy Mosk. khim.-tekhrol. in-ta im. Mendeleyeva, Issue 15, 1949, p. 75-79

SO: U-5240, 17, Dec. 53, (Ietopis 'Zhurnal 'nykh Statey, No. 25, 1949).

KRESHKOV, A. P.

Kreshkov, A. P. and Myshlyayeva, L. V. - "The application of ethyl ether of ortho-silicic acid for refractory bonding purposes," Trudy Mosk. khim.-tekhnol. in-ta im. Mendeleeva, Issue 15, 1949, p. 137-41

SO: U-5240, 17, Dec. 53, (Ietopis 'Zhurnal 'nykh Statey, No. 25, 1949).

Preparation of methyl and ethyl esters of orthosilicic acid. A. P. Kreshkov and G. D. Nessonova. *Zhur. Obshchei Khim. (J. Gen. Chem.)* 19, 600-3 (1949).—The poor yields of $(RO)_4Si$ from $SiCl_4$ and ROH may be ascribed to the combination of the following causes: conversion of some ROH to $ROCl$ by HCl ; hydrolysis of alkoxysilanes by traces of H_2O and polymerization of the products; and disproportionation on heating of mixts. contg. an excess of $SiCl_4$ (e.g. $(EtO)_4Si$ and $SiCl_4$ yield $(EtO)_3SiCl$, while the action of $SiCl_4$ on $3(RO)_4Si$ gives $ROCl$, ROR , $(RO)_2SiCl$, and $[(RO)_3SiO]_nSiO$). The following procedure eliminates most of the previous difficulties. Abs. $EtOH$ or $MeOH$ are used, and 4.4 moles ROH cooled with Dry Ice is treated with 1 mole $SiCl_4$ added at 0.5 g. min. through a capillary which lies along the wall of the flask, while dry air is passed slowly through the soln. with stirring; the mixt. is not warmed but air-blowing is continued after the addn. to remove HCl , after which the mixt. is fractionated *in vacuo*. The av. yields for the Me ester are 67%, for the Et ester 79.3%.
G. M. Kosolapoff

Chemico-Tech. Inst. in. Mendeleev.

CA

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Silicoorganic high-molecular compounds from orthosilicic acid and formaldehyde-urea condensation products. A. P. Kreshkov, G. S. Petrov, and A. D. Sienko (D. I. Mendeleev Chem.-Technol. Inst., Moscow). *Zhur. Priklad. Khim.* (J. Applied Chem.) 22, 747-52(1949).—Si-org. compds. were made as follows: formalin (38% HCHO) 250 was made up to pH 0.6-7.8 with NaHCO_3 , cryst. urea 100 added, the mixt. emulsified with PhCH_2OH 280 parts by wt., heated to 60° for 10 min., 2 N NaOH 40 ml. added, the org. layer sepd., dried *in vacuo* with heating to a viscous liquid, polyethoxypolysiloxane (obtained from esters of orthosilicic acid and contg. 10-40% SiO_2) added up to 15-25% of the wt. of the resin, and the lacquer thus formed deposited on glass, wood, and metal plates and on paper. It showed good adhesion compared to the usual reference materials. The plates, exposed to the air 2-4 hrs. at 20-3° and compared with similar test plates coated with the HCHO-urea resin without the Si-org. polymer additive, were found to be superior in water stability, thermal stability, chem. inert-

ness, corrosive properties, and dielec. strength. The new resin-lacquer contained 18.2% SiO_2 and 15.7% Et groups while the HCHO, H_2O , and OH contents were nil. It is concluded that the polymer is formed by the reaction of the alkoxy-silanes with the HCHO-urea resin, and the absence of the OH groups in the final product indicates that the interaction takes place as follows: $\text{---CH}_2\text{---N---CO---N---CH}_2\text{OH} + (\text{EtO})_2\text{Si---R} \xrightarrow{-\text{EtOH}} \text{---CH}_2\text{---N---CO---N---CH}_2\text{---OSi---R} + (\text{EtO})_2\text{Si---R}$. This mechanism is confirmed by the presence of EtOH in the vacuum distillate after the reaction is complete. The presence of EtO groups in the modified resin explains the ease of hydrolysis of the Si-org. compd., followed by the loss of H_2O to give a new compd. having an ether linkage thus: $(\text{RO})_2\text{Si(OEt)}_2 + \text{HOH} \rightarrow (\text{RO})_2\text{Si(OEt)}_2\text{OH} + \text{EtOH}$; $2(\text{RO})_2\text{Si(OEt)}_2\text{OH} \rightarrow \text{H}_2\text{O} + [(\text{RO})_2\text{Si(OEt)}_2]_2\text{O}$. The presence of the characteristic siloxane chain confirms this hypothesis and explains the increased thermal stability and high dielec. const. of the material.
Paul W. Howerton

1451

CA 31

Electron-microscopic investigation of some silicon-organic compounds. A. P. Kreshkov and A. M. Vladimirov (D. I. Mendeleev Chem. Technol. Inst., Moscow). *Doklady Akad. Nauk S.S.S.R.* 65, 185-6(1949).—Powd. ceramic masses made of polymers of methyl and ethyl esters of $\text{Si}(\text{OH})_4$, with various oxide and hydroxide fillers, showed fibers gathered into bundles, intertwined to form networks. The filler appears in the form of cryst. or amorphous inclusions. Thin films of these materials showed a similar bundle and network structure.

N. Thon

Pyranic Chemistry

Nomenclature of organosilicon compounds. A. P. Kreschuy (Mendeleev Chem.-Tech. Inst., Moscow). *J. Gen. Chem. U.S.S.R.* 20, 1473-9(1950)(Engl. translation).
 - K. develops a system closely similar to that of Sauer (cf. *J.* 38, 4310) except that compds. of the type R_3SiNH_2 (SiH_2NH_2 , SiH_3NH_2) are named silamines instead of silanes, and the shorter *disil* is proposed instead of *disilanyl*. The positions of branches and functional groups are designated by Geneva numbers, so that $SiH_3SiH_2SiH_2SiH_2SiH_3$

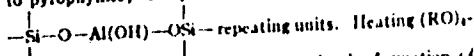
$SiH_3SiH_2SiH_2OH$ becomes 3-disilhexasilanol. Most names duplicate those prescribed by Sauer, but $Me_2Si(OSiH_2OSiH_3)_2$ becomes 1,1,1-trimethyl-3,3-disil-pentasiloxan-2-ol instead of Sauer's 1,1,1-trimethyl-1,3-disiloxan(pentasiloxan)-2-ol. R. G. Ruchow

CA

Reaction of alkoxysilanes with some chemical substances.

A. P. Kreshkov (Mendeleev Chem. Tech. Inst., Moscow).
Zhur. Priklad. Khim. (J. Applied Chem.) 23, 545-51 (1950).

—Alkox- and alkyl(or aryl)alkoxysilanes react metathetically with inorg. and org. substances which have functional groups and may be used as a raw material for artificial aluminosilicates. The reagents tried included oxides of Al, Ti, Si, hydroxides of Ca, Cu, Cr, Fe, Al, kaolin, talc, aldehydes, ketones, H₂O acids, ethers, etc., and (MeO)₂Si or (EtO)₂Si. The reactions with inorg. compds. were run with fine powders (mixing usually produced a heat effect) and the mixts. were pressed in a hydraulic press at 150 kg./sq. cm. The briquets were stored 3 months either in H₂O or over CaCl₂ and their crystal structure was examd. microscopically; specimens from Al(OH)₃ and Me orthosilicate polymer stored in air formed uniform grains with μ 1.540, while immersed specimens formed needles cemented with amorphous matter with the av. μ of the spherulites being 1.552, apparently belonging to hydroaluminosilicates, close to pyrophyllite; the products apparently are composed of



Si with boric acid or its salts results in the formation of vapors of boric acid esters (combustible with green flame), apparently yielding (RO)₂B and SiO₂. Polymeric silicate esters yield similar borates and partially hydrolyzed polymeric silicates; the vapor formation might be used as a qual. test for B. Heating (EtO)₂Si with unspecified synthetic H₂O acids yields oily, partly distillable substances, contg. 3.3-5.5% SiO₂; the other product is ROH. Polyethyl silicate heated with the primary condensate of urea and CH₃O gave a product contg. 18% SiO₂ and 15% EtO groups. The high-temp. treatment of the above products leads to alternation of hydrolysis, and intermol. dehydration reactions, with the final, extremely stable substances, having an appreciable similarity in structure to (SiO₂)_n. G. M. K.

CA

7

Analysis of silicon organic compounds. Qualitative analysis of alkyl- and arylchlorosilanes, alkyl- and aryl-alkoxysilanes, tetraalkylsilanes, and other silicon organic compounds. A. P. Krasnikov and V. A. Bork (D. I. Mendeleev Inst. Chem. Technol., Moscow) *Zhur. Anal. Khim.* 6, 78 87(1961). To det. the presence of silanes in tech. products mix 0.02-0.03 g. (or 2-3 drops in case of a liquid) with approx. 0.05-0.1 g. of Na_2CO_3 and approx. 0.01 g. of Na_2O . Take a pinch of the mixt. in a Pt loop and hold over a flame. Dissolve the resulting melt in a

few drops of H_2O and bring to a boil. Wet a strip of ash-free filter paper in the soln., add a drop of $\text{NH}_4\text{molybdate}$ soln., heat the paper over a flame, add a drop of 0.5% benzidine acetate soln., and expose to NH_3 vapor. A blue color indicates a pos. test. Run a blank on reagents and paper. Alkyl and aryl chlorosilanes form red-orange ppt. when reacting with an aniline soln. of tetramethyldiaminobenzophenone. Phenyl silanes acted upon by AlCl_3 and then by a benzene soln. of tetramethyldiaminobenzophenone form a purple-red soln. or cherry-red rings on the test tube. Alkyl and aryl alcoxysilanes reacting with AlCl_3 and benzene soln. of tetramethyldiaminobenzophenone yield yellow ppt. Reacting with AlCl_3 and an aniline soln. of tetramethyldiaminobenzophenone, they yield different color ppts. depending on the alcoxysilane. Tetraalkyl silanes, $(\text{C}_2\text{H}_5)_4\text{Si}$, dissolve Br on heating producing HBr . Tetraaryl silanes, $(\text{C}_6\text{H}_5)_4\text{Si}$, heated with H_2SO_4 , liberate SiH_4 . M. H.

Analytical Abst.
Vol. 1 No. 2
Feb. 1954
Inorganic Analysis

4
(4) Chem
278. New qualitative reaction for thiocyanates.
A. P. Kreshkov, S. S. Vilborg and K. I. Filippova
(*J. Anal. Chem., U.S.S.R.*, 1953, 8 [3], 226-227).
Addition of 0.1 N Cu acetate to an equal vol. of a
5 per cent. soln. of aniline in 5 per cent. acetic acid
gives a reagent that produces a yellow-brown cryst.
ppt. with thiocyanates. According to Korshman
("Microcrystalloscopy," 1947), who proposed the
reaction for the detection of Cu, the ppt. is
 $[Cu(C_6H_5NH_2)_5H_2O](CNS)_2$. The test for thio-
cyanate can be carried out in a test tube, on a spot
plate, on filter-paper, or on a microscope slide
(sensitivity 1 μ g). G. S. SMITH

5-21-54 mlf

Moscow Order of Lenin Chemico-Technological Inst. in. D. I.
Mendeleev.

Kreshkov, A.P.

✓ New qualitative test for thiocyanates. A. P. Kreshkov,
S. S. Vil'kov, and K. I. Filimonova. J. Anal. Chem.
U.S.S.R. 8, 251-3 (1953) (Engl. translation).—See C.A. 47,
11078c. H. L. H.

KRESHKOV, A. P.

1954. New colour reactions for oxalates and sulphites. A. P. Kreshkov, S. S. Vilborg and R. I. Filinova. *Ann. Chem., U.S.S.R.*, 1953, 8 (6), 306-310. Characteristic brown crystals are given by the reaction of oxalates and sulphites with benzidine in presence of Cu⁺⁺ salts. The compounds are salts of a complex $[Cu(C_{12}H_{16}(NH_2)_2)_2]^{++}$. With a reagent composed of equal vol. of 0.5 per cent. benzidine in 5 per cent. acetic acid and 0.2 N Cu acetate the sensitivity for oxalate corresponds to 0.18 mg in 1 ml when the reaction is carried out in a test tube and to 20 µg. in 1 drop on a spot plate. G. S. SMITH

KRESHKOV, A. P.

4343 44. KRESHKOV, A. P. i YAROSLAVYSEV, A. A.--Kurs analiticheskoy khimii.
(Ucheb. posobiye dlya uchashchikhsya khim. Spetsial'nostey tekhnikumov MKHP).
Pod obshch. Red. A. P. Kreshkova. M., Goshimizdat, 1954. 23sm. 25.000 ekz. V per. 543
Kn. 1. Kuchestvennyy analiz. 448 s. s. Ill.; 1L tabl. 9p. 15k.--(55-154) p
Kn. 2. Kolichestvennyy analiz. 415 s. s. Ill. 8p. 60k.--(54-58334) p

SO: Knizhnaya Letopsis', Vol. 1, 1955

KRESHKOV, A.P.; BORK, V.A.; MYSHLYAYEVA, L.V.; NESSONOVA, G.D.;
CHERKASSKIY, A.A., redaktor; LUR'YE, M.S., tekhnicheskii
redaktor

[Analysis of silicon organic compounds] Analiz kremniorgani-
cheskikh soedinenii. Moskva, Gos. nauchno-tekhnicheskoe izd-vo
khimicheskoi lit-ry, 1954. 255 p. (MLRA 8:1)
(Silicon organic compounds)
(Chemistry, Analytical)

KRESHKOV, A.P.; YAROSLAVTSEV, A.A.; BUDANOVA, L.M., redaktor; LUR'YE, M.S.,
tekhnicheskiiy redaktor.

[A course in analytical chemistry] Kurs analiticheskoi khimii. Moskva,
Gos.nauchno-tekhn.izd-vo khimicheskoi lit-ry. Vol.2.[Quantitative
analysis] Kolichestvennyi analiz. Pod obshchei red. A.P.Kreshkova.
1954. 415 p. (MIRA 8:5)
(Chemistry, Analytical--Quantitative)

Analysis of silicon-organic compounds. Qualitative analysis of mixtures of alkoxy-silanes with alcohols and silicon tetrachloride. A. P. Krenkov, V. A. Berk, and V. I. Shemyatnikova (Soviet Chemistry, 1954, Tech. Chem., 28, 160-161, 1954).—To detect SiCl_4 in $(\text{MeO})_2\text{Si}$ or $(\text{EtO})_2\text{Si}$ HI is used which, in the presence of SiCl_4 , liberates I_2 ; as indicator filter paper satd. with $\text{Hg}(\text{NO}_3)_2$ is used. Another reagent is aniline, or its soln. in bis(dimethylamino)benzophenone; in the presence of SiCl_4 a white ppt. is formed with aniline and a yellow one with its soln. H_2O is another reagent; in its presence SiCl_4 forms a white ppt. and blue litmus paper turns red. Still another reagent is $\text{K}_2\text{Cr}_2\text{O}_7 + \text{HNO}_3$, which, in the absence of SiCl_4 , produces a blue-violet color; the presence of SiCl_4 retards the appearance of color. $\text{Fe}[\text{Fe}(\text{SCN})_6]$ added to the silane produces a red color; in the presence of SiCl_4 the color disappears. MeOH in $(\text{MeO})_2\text{Si}$ and EtOH in $(\text{EtO})_2\text{Si}$ are detected with metallic Na, $\text{Fe}[\text{Fe}(\text{SCN})_6]$, or SiCl_4 . In the presence of SiCl_4 the 2 silanes are detected with the aid of borax + HCl or H_2SO_4 . In the presence of alcs. the silanes are detected by heating with HCl .
M. Horsch

KRESHKOV, A. P.

USSR.

Analysis of silicon-organic compounds. Qualitative analysis of mixtures of siloxanes with alcohols and silicon tetrachloride. A. P. Kreshkov, V. A. Bork, and V. I. Sharyatnikova. *Dokl. Akad. Nauk S.S.S.R.* 9, 165-8 (1964) [Eng. translation].—See C.A. 48, 9277k.

H. I. H.

KRESHKOV, A.P.

USSR/ Chemistry - Qualitative analysis

Card 1/1 : Pub. 145 - 5/14

Authors : Kreshkov, A. P.; Mikhaylenko, Yu. Ya.; and Yakimovich, G. F.

Title : Qualitative analysis of organo-silicon compounds by the method of infrared absorption spectroscopy

Periodical : Zhur. anal. khim. 9/4, 208-216, Jul-Aug 1954

Abstract : The infrared absorption spectra of certain Si-organic compounds were investigated. The qualitative analysis of Si-organic compounds, based on the investigated infrared absorption spectra, was found to be perfectly applicable to a wide variety of Si-compounds, namely, alkoxy- and aroxysilanes, alkyl- and arylalkoxysilanes, alkyl- and arylsilanes, siloxanes, a.o. Analytical signs, which make it possible to establish the presence of specific atomic groupings, were discovered and are described. Ten references: 6-USA; 3-USSR and 1-French (1940-1951). Tables; graphs.

Institution : The D. I. Mendeleev-Order of Lenin Chemical Technological Institute, Moscow

Submitted : April 6, 1953

KRESH KOV, A. P.

USSR.

Qualitative analysis of silicon organic compounds by
means of infrared absorption spectroscopy. A. P. Kresh-
kov, Yu. Ya. Mikhailenko, and G. P. Vashchenko.
Zh. Anal. Chem. U.S.S.R. 9, 231-4 (1954) (Engl. translation)
See C.A. 48, 13542s. H. L. H.

KRESHKOV, A.P.

7

✓ 2382. Complex compounds of copper with aralines
and their use in the detection of certain anions.

A. P. Kreshkov and K. I. Fijetova. Trudy
Khimicheskogo Inst. im. D. I. Mendeleeva
1956, 19, 61-68; Russk. Khim. 1956, 19, 61-68.

No. 29,080. Complex cations of Cu with organic
addends—benzidine, o-toluidine, aniline, p-toluidine,
p-toluidine and amidopyrine—are applied to the
detection of $S_2O_8^{2-}$, SO_4^{2-} , CO_3^{2-} , SCN^- and I^- .
The copper-benzidine complex can be used also
for the identification of thiourea. G. S. SMITH

PM

USSR/Analytical Chemistry - Analysis of Organic Substances, G-3

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1276

Author: Kreshkov, A. P., and Shemyatenkova, V. T., and ~~Kreshkov, A. P.~~, and Gludina, N. I.

Institution: Moscow Institute for Chemical Technology

Title: Analysis of Organosilicon Compounds. Communication 17. Qualitative Analysis of Industrial Alkoxy- and Aryloxysilanes. Communication 18. A Photocolorimetric Method for Determining Silicon and Silicates Obtained from Organosilicon Compounds

Original

Periodical: Tr. Mosk. khim.-tekmol. in-ta, 1954, No 18, 67-72; 73-76

Abstract: Communication 17. The transesterification reaction described by the equation $(C_6H_5O)_4Si + 4C_2H_5OH \rightleftharpoons (C_2H_5O)_4Si + 4C_6H_5OH$ is used for the detection of aryloxysilanes; 5-40 mg of phenoxysilane (I) are heated with 1-2 ml C_2H_5OH over a water bath for 10-15 minutes; the transesterification product of I reacts with cupric ammonia complex (II), HNO_3 , bromine water (III), concentrated NH_4OH in the presence of III

Card 1/3

USSR/Analytical Chemistry - Analysis of Organic Substances, G-3

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1276

Abstract: or $\text{Ca}(\text{ClO})_2$ with the formation of characteristic colors or precipitates. The smallest detectable amount is 0.08-20 mg. $\text{C}_6\text{H}_5\text{OH}$ in I is determined by the action of a benzene solution containing a weighed amount of LiI , HNO_3 , FeCl_3 , I_2 , and others. SiCl_4 in tetraethoxysilane or tetramethoxysilane is determined by reaction with HI or I^- with the evolution of I_2 ; 1-2 ml of the solution to be analyzed are heated with 2-3 drops of HI in a test tube covered with a piece of starch paper or a piece of filter paper impregnated with a solution of $\text{Hg}(\text{NO}_3)_2$. A red color on the paper impregnated with $\text{Hg}(\text{NO}_3)_2$ indicates the presence of ethoxy- and methoxysilanes, while a brown color indicates the presence of SiCl_4 . SiCl_4 can also be detected by reaction with $\text{C}_6\text{H}_5\text{NH}_2$, a solution of tetramethyldiaminobenzophenone in $\text{C}_6\text{H}_5\text{NH}_2$, water, by the inhibition of the reaction of alkoxysilanes with $\text{K}_2\text{Cr}_2\text{O}_7$ and HNO_3 , and other reagents. Methoxy- and ethoxysilanes can be detected in the presence of SiCl_4 by reaction with borax. $\text{C}_2\text{H}_5\text{OH}$ and CH_3OH give a red color with $\text{Fe}_2\text{Fe}(\text{CN})_6$ (a paper impregnated with an alcoholic solution of the salt is used after drying).

Card 2/3

USSR/Analytical Chemistry - Analysis of Organic Substances, G-3

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 1276

Abstract: Communication 18. For the photometric determination of Si (in silicates obtained from organosilicon compounds) by the absorption of the molybdenum blue line, a saturated solution of a mixture of Na_2SO_3 and Na_2SO_4 is proposed as the reducing agent. A weighed sample (0.00008 gm/ml SiO_2) is dissolved in 15 ml of 10% KOH and diluted; 5-50 ml of the solution thus obtained are treated with 5 ml of 5% $(\text{NH}_4)_2\text{MoO}_4$ in 10% CH_3COOH and 5 ml of the reducing solution are added. The solution is heated 5 minutes, cooled, treated with 20 ml of glycerine solution (20 gms/l $(\text{NH}_4)_2\text{C}_2\text{O}_4$, 20 gms/l Na_2CO_3 , 150 ml/l glycerine), and diluted to 100 ml. The photocolometric determination is made after one hour using a wavelength of 650-700 m μ .

Card 3/3

KRESHKOV, A.P.

New types of silicates from organosilanes, organo-
A. A. Kreshkov and M. L. Dvinskikh. *Trudy Akad.
Khim. Tekhnol. Iss.* 1934, No. 13, 8-13. *Referat Zhur.
Khim.* 1936, No. 479. — The authors study the reaction be-
tween some silanes, and organosilanes. It is shown that
by the reaction of siloxy-, alkyl-, and arylalkoxysilanes with
some acids of inorg. acids, hydroxides, hydrides, etc., a new
type of silicate is formed contg. 10-30% org. components.

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CIA-RDP86-00513R000826410

APPROVED FOR RELEASE: Monday, July 31, 2000

CIA-RDP86-00513R000826410C

Kreshko V, A.P.

1/6
Imey

Reaction of tetrahydrovalone and "calcium stearate"
P. Kreshko and A. N. Chivikava, J. Appl. Chem. 11
1958, 6 (1958) (Engl. translation).--Ser. C. A.
49, 20342
B. M. R.

Mr. [unclear]

Reaction of triethoxysilane and "calcium glycerate."
A. P. Kreshkov and A. N. Chivikova (D. I. Mendeleev
Chem. Technol. Inst., Moscow). Zhur. Priklad. Khim.
27, 1128-31 (1954).—Heating mixts. of solns. of $\text{Ca}(\text{AcO})_2$
(5.85 g.) in glycerol (100 g.) [considered to be "Ca glyce-
rate," $\text{Ca}(\text{OAc})_2 \cdot x\text{C}_2\text{H}_4(\text{OH})_2$] with $(\text{EtO})_2\text{Si}$ (ratios of
 CaO/SiO_2 ranging from 1:6 to 2:1) 10-12 hrs. at 180-5°
under reflux yielded 2 layers. The glycerol layer on treat-
ment with H_2O at 60° yielded gelatinous ppt. (supernatant
soln. had pH 5.8-8.0), which on drying gave powdery Ca
hydroxylates, $\text{CaO} \cdot x\text{SiO}_2 \cdot y\text{H}_2\text{O}$, which in contact with air
were partly converted into carbonates. Const. wt. could
not be attained on drying even at 105°, but after heating to
600° const. wts. were attained. Treatment at 60° gave
merely hydrated SiO_2 .
G. M. Kosolapoff

KRESHKOV, A. P.

USSR/Chemistry

Card 1/1

Authors : Kreshkov, A. P. Mikhaylenko, Yu. Ya., and Yakimovich, G. F.

Title : Study of infrared absorption spectra of silicon-organic compounds

Periodical : Zhur. Fiz. Khim. 28, Ed. 3, 537-551, March 1954

Abstract : Investigated were the infrared absorption spectra of numerous silicon-organic compounds, -tetramethoxysilane, tetraethoxysilane, tetrabutoxysilane, tetraisobutyloxysilane, tetramethylethoxysilane, tetraphenoxysilane, tetraphenylsilane, phenyldimethylchlorosilane, diethyldiethoxysilane, diethylsilanediol and hexaethyldisiloxane. Spectral signs are given for the identification of functional groupings and bonds: $-\text{CH}_3$, $\equiv \text{Si}-\text{CH}_3$, C_6H_5- , $\text{Si}-\text{O}$, $-\text{O}-\text{R}$, $-\text{CH}=\text{CH}_2$, $\text{O}-\text{H}$. Spectral signs were established enabling to distinguish between one class of silicon-organic compounds and the other. Twenty references; 1 German since 1885, 1 USSR since 1908. Tables, graphs.

Institute : The D. I. Mendeleev Chemical-Technological Institute, Moscow, USSR

Submitted : July 1, 1953

KRESHKOV, A. P.

✓ Potassium silicon organic silicate. A. P. Kreshkov,
M. A. Matveyev, A. D. Nosennova, and V. A. Matveyev,
U.S.S.R. 101,329, Nov. 30, 1953. E silicate is made to
react with ~~terracotta~~ ^{silica}. The obtained product has a
greater cementing capacity, dries better, and retains its vol.

M. Hosh...

5
H-4E2C
2 May

PM
MT

KRESHKOV, A.P.; YELINEK, V.I.; SMIRENKINA, I.P.; MATVEYEV, V.D.

Thermography of certain alkoxysilanes in the phase transition from liquid state to vapor. Zhur.fiz.khim. 29 no.2:368-373 F '55. (MLRA 8:7)

1. Moskovskiy khimiko-tekhnologicheskii imeni D.I. Mendeleeva.
(Silanes) (Thermocouples)

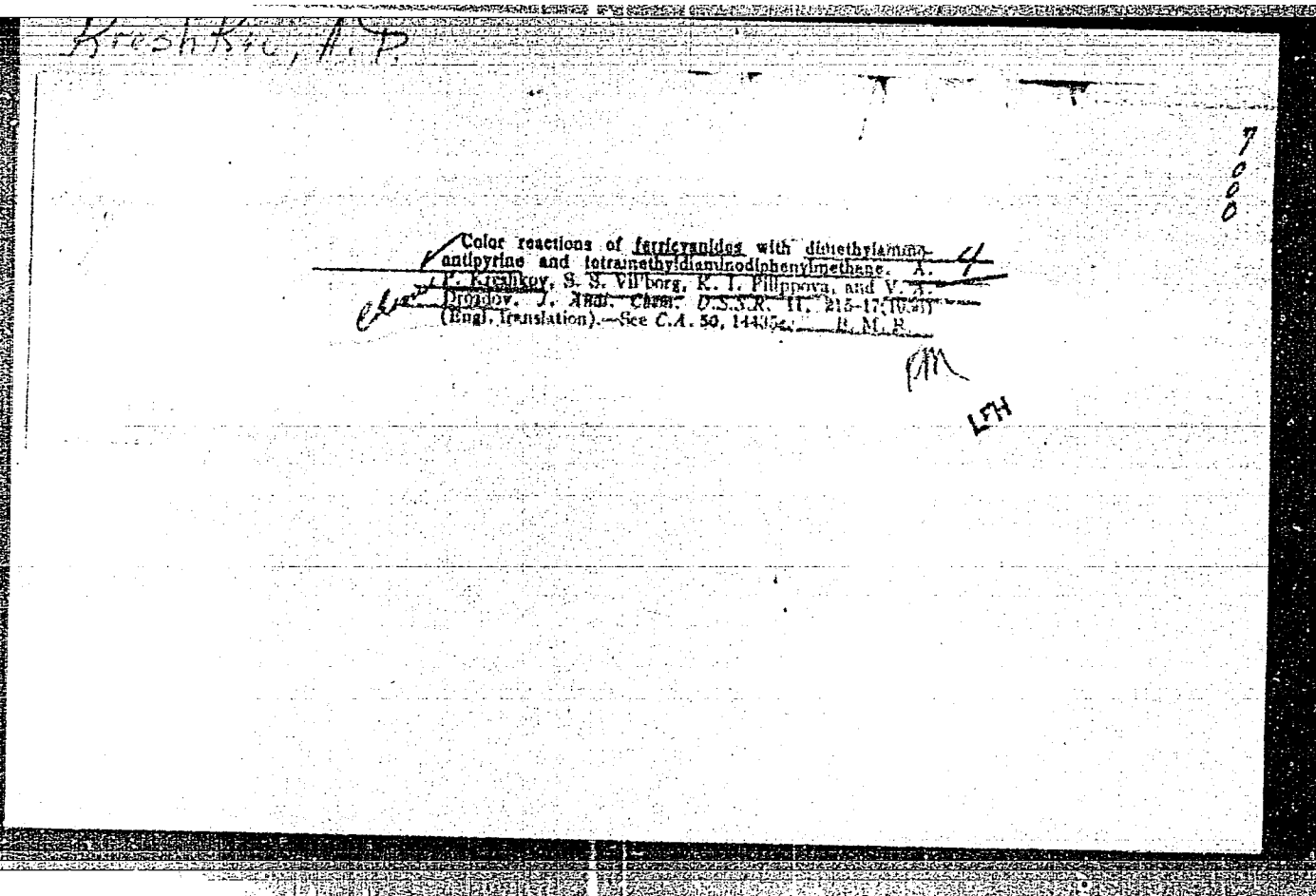
KRESHKOV, Anatoliy Pavlovich; SIL'VESTROVICH, S.I., nauchnyy redaktor;
GOMOZOVA, N.A., redaktor; GLADKIKH, N.N., tekhnicheskii redaktor.

[Silicon organic compounds in engineering] Kremniorganicheskie
soedineniia v tekhnike. Izd.2-oe, perer. i dop. Moskva, Gos.izd-vo
po stroit. materialam, 1956. 288 p. (MLRA 10:4)
(Silicon organic compounds)

KRESHIKOV, A. P.

Color reactions of ferrocyanides with dimethylaminopyrrole and tetramethyldiaminodiphenylmethane. A. P. Kreshkov, S. S. Vilyug, K. I. Filippova, and V. A. Dvornik. (M. I. Mendeleev Chem. Technol. Inst., Moscow). *Zh. Anal. Khim.*, 11, 225-12 (1956).—Two new reactions for detection of $\text{Fe}(\text{CN})_6^{4-}$ are described. One is the oxidation of dimethylaminopyrrole with $\text{Fe}(\text{CN})_6^{4-}$ in the presence of Zn ions, thereby producing a violet color. The other is the oxidation of tetramethyldiaminodiphenylmethane with $\text{Fe}(\text{CN})_6^{4-}$ in the presence of Zn ions and thereby producing a blue color. These tests can be carried out in the presence of $\text{Fe}(\text{CN})_6^{4-}$, ClO_4^- , BrO_3^- , IO_3^- , and other oxidizing agents.

M. Herz



Kreshkov, A.P.

USSR/ Analytical Chemistry - Analysis of Inorganic Substances

G-2

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12111

Author : Kreshkov A.P., Senetskaya L.P.

Inst : Moscow Chemico-Technological Institute

Title : New Qualitative Color Reaction for Hydrosulfuric Acid Anion

Orig Pub : Tr. Mosk. khim.-tekhno. in-ta, 1956, No 22, 108-112

Abstract : A new qualitative color reaction is proposed for S^{2-} with complex salt of Hg^{2+} and diphenylcarbazide (I). On action of sodium sulfide upon a drop of the violet suspension of I, the sediment is completely dissolved and a red solution results. Minimum pH 9. Reaction can be carried out on filter paper by placing a drop of aqueous suspension of I and a drop of 0.1 N alkali on the paper and exposing it to the action of gaseous H_2S . Color of the spot changes from blue to red. Sensitivity of reaction 2.5 . . . Maximum dilution 1 : 12000. The reaction is specific: $S_2O_3^{2-}$, SO_3^{2-} and other ions do not interfere. The reaction can be utilized in colorimetric analysis for determination of S^{2-} .

Card 1/1

Kreshov, A. P.

USSR/Analytical Chemistry - Analysis of inorganic substances

G-2

Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 8431

Author : Kreshov, A. P. and Sayushkina, Ye. N.

Inst : Moscow Chemical Engineering Institute

Title : Separation of Copper and Lead Cations by Ion Exchange Chromatography

Orig Pub : Tr. Mosk. khim.-tekhnol. in-ta, 1956, No 22, 116-122

Abstract : In the presence of tartaric (or citric) acids and ammonia, Cu^{2+} forms a complex cation $[\text{Cu}(\text{NH}_3)_4]^{2+}$ (I), and Pb^{2+} $[\text{Pb}(\text{C}_4\text{H}_2\text{O}_6)]^{2-}$ (II); when a solution containing the above-indicated complexes is passed over a cation-exchange resin, I combines with the active groups of the exchange resin, whereas II remains in the eluate. The separation of the cations has been carried out using Sul'fougol, Espatit-1, SBS, SDV-2, and SDV-3 cation exchange resins. The over-all resolution, exchange rates, and the elution of the adsorbed Pb^{2+} from the cation-exchange resins have been studied. Type SDV-2 and SDV-3 cation-exchange resins appear to possess the best exchange and kinetic properties. The authors propose the following method for the separation of Cu^{2+} and Pb^{2+} : to 50-

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Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 8431

100 ml of a solution containing Pb^{2+} and Cu^{2+} in amounts of 500 mg. add 3 gms tartaric acid, stir until dissolution is complete, and add 30 ml conc. NH_4OH . The solution is passed through a column packed with 15 gms of cation exchange resin in the H form; a fluid velocity of 5 ml/min is used. I and part of the Pb^{2+} are adsorbed; II is retained in the effluent. The cation-exchange resin is washed with a solution containing 3 gms tartaric acid and 10 ml conc. NH_4OH per 100 ml solution until the Pb^{2+} is completely removed in the effluent. The effluent and wash portions are combined and evaporated to a volume of 150 ml; the Pb is precipitated with $K_2Cr_2O_7$ in the presence of CH_3COONa and the Pb determined titrimetrically as $PbCrO_4$. The cation exchange resin is next washed with 50 ml H_2O and 1N HNO_3 , 10 ml conc. H_2SO_4 are added to the effluent, the volume of the solution is adjusted by evaporation, and the Cu determined iodometrically. An alternate method would be to pass the solution through a cation-exchange resin in the H form, followed by washing with tartaric acid and NH_4OH ; the Cu will be retained on the exchange resin and the Pb will be removed in the effluent. Both methods give good separation.

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Abs Jour : Referat Zhur - Khimiya, No 3, 1957, 8431

Citric acid may be used in the place of tartaric acid. The separation of Pb^{2+} and Ag^{+} , Pb^{2+} and Cd^{2+} , Pb^{2+} and Zn^{2+} , and the separation of Pb^{2+} from Cu^{2+} , Ag^{+} , Cd^{2+} , and Zn^{2+} are also described.

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Kreshkov, A.P.

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Author : Kreshkov A.P., Vil'borg S.S., Drozdov V.A.

Inst : Moscow Chemico-Technological Institute

Title : Use of Organic Reagents in Inorganic Analysis

Orig Pub : Tr. Mosk. khim.-tehnol. in-ta, 1956, No 22, 123-130

Abstract : On combining of solutions of $\text{Cu}(\text{C}_2\text{H}_3\text{O}_2)_2$ and parachlorani-

line, are formed the complex salts $[\text{Cu}(\text{ClC}_6\text{H}_4\text{NH}_2)_2]$

($\text{C}_2\text{H}_3\text{O}_2$)₂ (I) and $[\text{Cu}(\text{ClC}_6\text{H}_4\text{NH}_2)_4 \cdot (\text{C}_2\text{H}_3\text{O}_2)_2]$, which are

reagents for periodates (II), persulfates (III), thiocyanates, perchlorates, chlorates, iodates, bromates and other anions. On addition to 1 ml of a solution of II, of 5 drops of I, even in the cold, a greenish precipitate is formed, the color of which rapidly changes to dark-brown. Composi-

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